farm and home

POULTRY HUSBANDRY NO. 8

FACT SHEET

PRODUCING QUALITY EGGS

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Only top-quality eggs can command top prices. Profit or loss from the laying flock, therefore, may well depend on the percent of high-quality eggs delivered. In fact, the time may not be far away when there will not even be a market for eggs failing to meet top-quality standards. Every producer must become "quality conscious" if he wishes to be successful in the industry.

What Is a Quality Egg?

Quality is the combination of characteristics that results in consumer appeal and acceptance. In shell eggs these characteristics are:

1. Normal egg shape.
2. Strong shells.
3. Clean shells.
4. Uniform shell color.
5. Firm, upstanding whites.
6. Round, upstanding yolks free of defects and of medium to light color.
7. Freedom from blood and meat spots.
8. Delicately mild in flavor and odor.

Producing Top-Quality Eggs

Contrary to popular belief, not all eggs gathered from the nest are necessarily of first-rate quality. However, the largest percentage of top-quality eggs can be produced by adopting the following practices:

1. Select a strain of birds noted for its ability to lay eggs of high quality. Egg shape, shell color, shell strength, albumen quality, and incidence of blood and meat spots are quality factors which can be improved through selective breeding. Most breeders are giving considerable attention to this possibility. Use results of random sample tests and past performance in your own and neighboring flocks as guides.
2. Confine the flock to the laying house at all times. Confinement will result in fewer soiled eggs, better control over yolk color, and fewer complaints of off-flavored eggs.
3. Feed well-balanced rations. Deficiencies of calcium, phosphorus, manganese, and vitamin D lead to poor shell quality. Yolk color is almost entirely dependent on the bird's diet. Low vitamin A levels may increase the incidence of blood spots.
4. Produce a high percent of nest-clean eggs. See Poultry Husbandry Fact Sheet No. 1 for management practices to achieve this goal.
5. Keep the flock disease free through a program of good sanitation and vaccination. Certain diseases, especially Newcastle and infectious bronchitis, often cause birds returning to production to lay eggs of poor shape, poor shell quality, and low interior quality.
6. Avoid exposing the flock to high laying-house temperatures. At temperatures above 85° F. birds will lay eggs having thinner shells and less firm albumen.
7. Replace birds in the laying flock when they are 18 to 20 months old. The finest-quality eggs are laid by pullets. Older birds lay eggs lacking in acceptable shell quality and albumen firmness.

Maintaining Top Quality in Eggs

Eggs are a perishable product, and the care they receive between the time of laying and delivery to the first buyer is most crucial. Observing the following rules will aid in maintaining top quality all the way to the consumer:

1. Gather eggs frequently. Gathering at least

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3 times daily from conventional nests and twice daily from roll-away nests and caged birds is recommended. Eggs should receive a minimum exposure to henhouse temperatures and ammonium fumes, both of which accelerate the breakdown of interior quality.

2. Cool eggs promptly to below 60° F. This can best be done by gathering the eggs in wire baskets and cooling with mechanical refrigeration. Avoid excessive ventilation of the cooling cabinet or walk-in refrigerator in order to cut down on carbon-dioxide loss from the eggs (retention of carbon dioxide aids in quality preservation).

3. Clean soiled eggs as soon after gathering as possible. The soil will come off more easily if promptly removed. See Poultry Husbandry Fact Sheet No. 1 for recommended procedures.

4. Shell-treat eggs within 6 to 24 hours of laying. Spraying eggs with oil or an oil-and-water emulsion aids in quality preservation by sealing in the egg's natural carbon dioxide. Talk to your egg buyer before beginning a shell-treating program. Some outlets do not accept oil-processed eggs.

5. Pack cooled eggs small end down into clean, precooled cases. Warm packing materials will raise egg temperatures and accelerate quality loss. With small ends down there is less damage to the air cells of the eggs, and yolks receive greater protection in transit.

6. Hold cased eggs below 60°F. and at approximately 75 percent relative humidity. Although temperature is the most important factor in retaining interior quality, proper humidity will also be helpful. At 75 percent relative humidity, moisture loss from the eggs will be retarded, yet mustiness and off-odors will not readily develop on the walls of the cooler.

7. Market eggs frequently. The faster eggs are moved from the nest to the consumer, the less time there will be for any decline in quality. Twice-a-week marketing is normal and satisfactory where holding conditions on the farm meet the above standards.

Refrigerating Eggs on the Farm

In Minnesota natural refrigeration is available for a part of the year to cool and hold eggs in the 50°-60°F. range. However, mechanical refrigeration is a must if uniformly high-quality eggs are to be delivered on a year-around basis.

For flock sizes of 1,000-1,500 or less, a cooling cabinet can be very satisfactory. A number of manufacturers have models available in various sizes. Six-case capacity cabinets currently list at $400 or less, with 12-case cabinets costing around $500. These coolers can frequently be obtained at discounts through participation in an organized quality-egg program. It is also possible to build your own cabinet and buy a refrigeration unit separately.

For larger flocks a walk-in-type refrigerated egg room is recommended. Commercially built walk-in coolers are available in either wood or metal construction and in sizes of 6 feet x 6 feet and larger. Package refrigeration units are also available for installation in an insulated room constructed as a part of the service area of the laying houses. Humidifiers, humidistats, and heating devices can be added to give complete automatic control over both temperature and humidity. Total costs for such a do-it-yourself cooler of 20- to 24-case capacity can be less than $600.

Costs of cooling eggs on a per-dozen basis can vary greatly depending on equipment costs and size of operation. The following example shows that the costs can be low:

Cooler: 12 case, 1/6 h.p. motor, $500 cost.

Capacity: Eight 30-dozen cases and eight 15-dozen wire baskets, or twelve 30-dozen cases, or four days production from 1,500 birds at 70 percent production.

Motor pull: 250 watts per hour, 16 hours per day, or 4 kilowatts per day.

Total Cost per Year

Depreciation (based on life of 10 years)	$ 50.00
Electricity (3¢ per kilowatt)	45.00
Interest (5 percent)	25.00
	$120.00

Flock Size	Eggs Produced	Cooling Cost per Dozen
500	9,125	1.3¢
1,000	18,250	0.7¢
1,500	27,375	0.4¢

Cooler Capacity for Various-Sized Flocks*

Flock size	No. of baskets** cooled per day	No. of cases accumulated	Inside dimensions of cooler room***
500	3	4	6-case cabinet
1,000	5	8	12-case cabinet
2,000	10	16	5 feet x 6 feet
3,500	17	27	6 feet x 7 feet
5,000	24	39	7 feet x 8 feet
10,000	49	78	10 feet x 12 feet

* Based on 70 percent production and twice-a-week delivery.
** 12 dozen eggs per basket.
***Room height of 7 feet.

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